

BOTTLE WITH CONSTANT LIQUID POURING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The present invention relates to scale bottles and more particularly to a medicine bottle having a device which is capable of pouring a constant amount of liquid medicine per user's setting.

2. Description of Related Art

10 Conventionally, scale is printed on a bottle for user visually observing the remaining amount of liquid therein. Also, medicine (e.g., liquid medicine) is typically contained in a bottle. Further, a patient usually takes a fixed amount of liquid medicine per doctor's order. As such, the patient may pour a required amount of liquid medicine out of the bottle by observing scale. Alternatively, the patient may slowly pour the required amount of medicine into a scale cup or the
15 like if no scale is provided on the medicine bottle.

20 However, the prior techniques suffered from several disadvantages. For example, it is difficult of precisely pouring the required amount of medicine out of the medicine bottle since the medicine bottle is typically small and the marks of the scale are densely printed (i.e., being difficult of recognizing). It is often that either too much or too little medicine is poured. In the former case, the excessive amount of medicine may have to pour into the medicine bottle again. A user also has to clean the scale cup after use. Otherwise, the remained medicine may cause contamination. This is inconvenient, particularly while traveling. Moreover, the scale cup and the medicine bottle are not formed as a
25 unit. Hence, it is typical that a user can only find one of them when a need arises. This is troublesome. Thus, the need for improvement still exists.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a unitary bottle having an internal device which can precisely pour a fixed amount of liquid as user desires.

To achieve the above and other objects, the present invention provides a bottle comprising a flexible liquid reservoir including a neck, a cylindrical ring threadedly secured to the neck, a spout having an annular flange, and a retaining cap secured on the spout, the retaining cap being threadedly secured to the ring; a constant liquid control device inside the liquid reservoir and comprising a staged cup including a top annular flange rested on the neck, the flange of the cup being urged the flange of the spout against inside of the ring, a scale on an outer surface of the cup, and a narrow bottom adapter, a conduit partly disposed in the cup, and a flow regulator; a tube fastened at the adapter; grip means extended downwardly from the spout for slidably holding the conduit, whereby removing the retaining cap from the liquid reservoir and loosening the ring will enable a free rotation of the spout for moving the conduit upwardly or downwardly at the flow regulator as the grip means rotates until a top opening of the conduit is flush with a predetermined mark of the scale; fastening the ring and pressing the liquid reservoir will direct liquid to flow upward into the cup through the tube and the conduit until liquid has reached a level higher than the top opening of the conduit; releasing the pressing will cause liquid above the top opening of the conduit to flow back to the liquid reservoir through the conduit and the tube and store liquid below the top opening of the conduit in the cup; and pressing the liquid reservoir and turning the liquid reservoir upside down will pour liquid in the cup out of the spout.

The above and other objects, features and advantages of the present invention will become apparent from the following detailed description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a preferred embodiment of bottle according to the invention;

FIG. 2 is a cross-sectional view taken along line 2-2 of FIG. 1;

5 FIG. 3 is an exploded view of the bottle; and

FIGS. 4A, 4B, 4C, and 4D are cross-sectional views illustrating operations of pouring a fixed amount of liquid out of the bottle according to the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

As used herein, the term "liquid" refers to liquid medicine, oil, water, or the
10 like.

Referring to FIGS. 1, 2, 3 and 4A, there is shown a bottle 10 constructed in accordance with the invention. The bottle 10 comprises a flexible liquid reservoir 11 for containing liquid 40A, flat front and rear sides 12 being deformable by pressing with the hand, a neck 13 having outer threads, a cylindrical ring 14
15 having inner threads and outer threads on a top annular flange having a smaller diameter, the inner threads of the ring 14 being threadedly securable to the outer threads of the neck 13, a spout 15 for outputting liquid, and a retaining cap 16 secured on the spout 15 for preventing leaking. The retaining cap 16 has inner threads to be threadedly securable to the outer threads of the ring 14 for
20 stopping the flow.

A constant liquid control device 20 is disposed inside the bottle 10 and comprises a staged cup 21 including an annular top flange 24 rested on top of the neck 13 when the cup 21 is disposed in the neck 13, the flange 24 being urged an annular flange of the spout 15 against the upper shoulder of the ring
25 14, a scale 25 on the outer surface, and a narrow bottom adapter 26; a conduit 22 partly disposed in the cup 21 and including an upper bent section 27 having an opening 28; and a flow regulator 23 including outer threads 211 around the

outer surface of the conduit 22 and inner threads 212 around the inner surface of the adapter 26 so that the outer threads 211 can be threadedly secured to the inner threads 212.

5 A tube 30 comprises a top opening 31 snugly put on the adapter 26, and a bottom opening 32 having an oblique surface proximate the bottom of the liquid reservoir 11 for facilitating the suction of liquid into the tube 30. As shown in FIG. 2, a lower part of the conduit 22 is inserted into an upper part of the tube 30. Two pegs 151 are extended downwardly from the spout 15. A gap 152 is formed between the pegs 151. The gap 152 is conformed to the outer diameter
10 of the conduit 22 so as to slidably hold the bent section 27 therein.

Referring to FIGS. 4A to 4D, operations of the invention will now be described in detail below. First, remove the retaining cap 16 from the liquid reservoir 11 by unscrewing and loosen the ring 14 by unscrewing. A user can then rotate the spout 15 freely by observing the scale 25. At the same time, the
15 conduit 22 moves upwardly or downwardly by threading at the threads 211 and 212 as the pegs 151 rotates until the opening 28 is flush with a desired mark of the scale 25. Next, fasten the ring 14 at the liquid reservoir 11 again by screwing (see FIG. 4A).

Secondly, press the flat front and rear sides 12 to force the liquid 40A to
20 flow upward into the cup 21 for storage through the opening 32, the tube 30, the conduit 22, and the opening 28. The pressing will continue until the liquid 40A has reached a level higher than the opening 28 (see FIG. 4B). Once released, liquid above the opening 28 will flow back to the liquid reservoir 11 through the opening 28, the conduit 22, the tube 30, and the opening 32. As a result, liquid
25 (e.g., liquid 48B) lower than the opening 28 will remain in the cup 21 (see FIG. 4C). In other words, the amount of liquid 48B stored in the cup 21 can be precisely controlled by adjusting the height of the opening 28 by turning the

spout 15.

Thirdly, pour the liquid 48B in the cup 21 out of the spout 15 by pressing the flat front and rear sides 12 (see FIG. 4D).

5 While the invention herein disclosed has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.